

WHAT IS CLAIMED IS:

1                   1.    A method comprising:  
2                    placing an intermediate anchor having a wedge  
3                   hole at a concrete construction joint;  
4                    inserting a tendon through the intermediate  
5                   anchor leaving a sheathing of the tendon substantially  
6                   intact;  
7                    making a single cut circumferentially around  
8                   the sheathing inside the wedge hole;  
9                    tensioning the sheathed tendon following  
10                   setting of concrete poured on a bearing side of the  
11                   concrete construction joint, whereby the tensioning  
12                   causes the sheathing to pull away from the single cut so  
13                   as to thereby create an exposed portion of the tendon;  
14                   and,  
15                   gripping the exposed portion with a wedge to  
16                   hold the tension.

1                   2.    The method of claim 1 wherein the  
2                   tensioning of the sheathed tendon comprises applying a  
3                   gripper wedge to the tendon outside of the intermediate  
4                   anchor.

1           3. The method of claim 2 wherein application  
2 of the gripper wedge damages the sheathing of the tendon,  
3 and wherein the method further comprises repairing the  
4 damage before pouring concrete on a stressing side of the  
5 concrete construction joint.

1           4. The method of claim 3 wherein the repairing  
2 of the damage comprises taping.

1           5. The method of claim 1 further comprising  
2 attaching an adaptor to the intermediate anchor on the  
3 bearing side and inserting an O-ring within the adaptor  
4 so as to engage the adaptor and the tendon.

1           6. The method of claim 5 further comprising  
2 attaching a bushing to the adaptor so as to bias the O-  
3 ring into sealing engagement with the adaptor and the  
4 tendon.

1           7. The method of claim 1 further comprising  
2 attaching a cap to the intermediate anchor on a stressing  
3 side of the construction joint and inserting an O-ring  
4 within the cap to engage the cap and the tendon.

1           8.    The method of claim 7 further comprising  
2           attaching a bushing to the cap so as to bias the O-ring  
3           into sealing engagement with the cap and the tendon.

1           9.    The method of claim 7 wherein the O-ring  
2           has an inner diameter larger than an outer diameter of  
3           the tendon.

1           10.   The method of claim 1 further comprising:  
2           attaching an adaptor to the intermediate anchor  
3           on the bearing side;  
4           attaching a backside bushing to the adaptor;  
5           attaching a cap to the intermediate anchor on a  
6           stressing side of the construction joint; and,  
7           attaching a frontside bushing to the cap.

1           11.   The method of claim 10 further comprising:  
2           inserting a backside O-ring within the adaptor  
3           so as to engage the adaptor and the tendon; and,  
4           inserting a frontside O-ring within the cap so  
5           as to engage the cap and the tendon.

1                   12. An intermediate anchor system for a tendon  
2 comprising:

3                   an intermediate anchor having a backside, a  
4 frontside, and a wedge hole arranged to receive a wedge;  
5 and,

6                   backside and frontside seals at the backside  
7 and the frontside, respectively, of the intermediate  
8 anchor, wherein the backside and frontside seals are  
9 arranged to seal an exposed portion of the tendon within  
10 the wedge hole, and wherein the exposed portion of the  
11 tendon is confined to the wedge hole.

1                   13. The intermediate anchor system of claim 12  
2 wherein the backside seal comprises an adaptor engaging  
3 the intermediate anchor and an O-ring engaging the  
4 adaptor and the tendon.

1                   14. The intermediate anchor system of claim 13  
2 wherein the backside seal further comprises a bushing  
3 biasing the O-ring into sealing engagement with the  
4 adaptor and the tendon.

1           15. The intermediate anchor system of claim 12  
2 wherein the frontside seal comprises a cap engaging the  
3 intermediate anchor and an O-ring engaging the cap and  
4 the tendon.

1           16. The intermediate anchor system of claim 15  
2 wherein the frontside seal further comprises a bushing  
3 biasing the O-ring into sealing engagement with the cap  
4 and the tendon.

1           17. The intermediate anchor system of claim 15  
2 wherein the O-ring has an inner diameter at least  
3 somewhat larger than an outer diameter of the tendon.

1           18. The intermediate anchor system of claim 12  
2 wherein the backside seal comprises an adaptor engaging  
3 the intermediate anchor and a backside O-ring engaging  
4 the adaptor and the tendon, and wherein the frontside  
5 seal comprises a cap engaging the intermediate anchor and  
6 a frontside O-ring engaging the cap and the tendon.

1           19. The intermediate anchor system of claim 18  
2 wherein the backside seal further comprises a backside  
3 bushing biasing the backside O-ring into sealing  
4 engagement with the adaptor and the tendon, and wherein  
5 the frontside seal further comprises a frontside bushing  
6 biasing the frontside O-ring into sealing engagement with  
7 the cap and the tendon.

1           20. The intermediate anchor system of claim 12  
2 wherein the frontside seal comprises:

3           a cap engaging the intermediate anchor;  
4           an O-ring within the cap and engaging both the  
5 cap and the tendon; and,  
6           a bushing engaging the cap so as to bias the O-  
7 ring into sealing engagement with the cap and the tendon.

1           21. The intermediate anchor system of claim 12  
2 wherein the backside seal is on a bearing side of the  
3 intermediate anchor system, and wherein the backside seal  
4 comprises:

5           an adaptor having an adaptor neck engaging an  
6 anchor neck of the intermediate anchor;  
7           an O-ring within the adaptor and engaging both  
8 the adaptor and the tendon; and,

9 a bushing engaging the adaptor so as to bias  
10 the O-ring into sealing engagement with the adaptor and  
11 the tendon.

1 22. The intermediate anchor system of claim 21  
2 wherein the O-ring is a backside O-ring, wherein the  
3 bushing is a backside bushing, and wherein the frontside  
4 seal comprises:

5 a cap engaging the intermediate anchor;  
6 a frontside O-ring within the cap and engaging  
7 both the cap and the tendon; and,  
8 a frontside bushing engaging the cap so as to  
9 bias the frontside O-ring into sealing engagement with  
10 the cap and the tendon.

1 23. The intermediate anchor system of claim 12  
2 wherein the backside seal is on a bearing side of the  
3 intermediate anchor system, and wherein the backside seal  
4 comprises an adaptor and a bushing engaging one another.

1                   24. The intermediate anchor system of claim 23  
2 wherein the backside seal further comprises an O-ring  
3 biased into sealing engagement with the adaptor and the  
4 tendon when the adaptor and the bushing engage one  
5 another.

1                   25. An intermediate anchor system comprising:  
2                   a tendon having a greased cable within a  
3 sheathing, wherein the tendon has an exposed portion, and  
4 wherein the exposed portion has no sheathing;  
5                   an intermediate anchor having a backside, a  
6 frontside, and a wedge hole arranged to receive a wedge,  
7 wherein the sheathed tendon extends through the  
8 intermediate anchor so that the exposed portion is within  
9 the wedge hole;  
10                  a wedge within the wedge hole and clamped to  
11 the exposed portion of the sheathed tendon;  
12                  a backside seal engaging the sheathed tendon at  
13 the backside of the intermediate anchor; and,  
14                  a frontside seal engaging the sheathed tendon  
15 at the frontside of the intermediate anchor, wherein the  
16 backside and frontside seals seal the exposed portion of  
17 the sheathed tendon.



1           26. The intermediate anchor system of claim 25  
2 wherein the backside seal comprises an adaptor engaging  
3 the intermediate anchor and an O-ring engaging the  
4 adaptor and the tendon.

1           27. The intermediate anchor system of claim 26  
2 wherein the backside seal further comprises a bushing  
3 biasing the O-ring into sealing engagement with the  
4 adaptor and the tendon.

1           28. The intermediate anchor system of claim 25  
2 wherein the frontside seal comprises a cap engaging the  
3 intermediate anchor and an O-ring engaging the cap and  
4 the tendon.

1           29. The intermediate anchor system of claim 28  
2 wherein the frontside seal further comprises a bushing  
3 biasing the O-ring into sealing engagement with the cap  
4 and the tendon.

1           30. The intermediate anchor system of claim  
2 28 wherein the O-ring has an inner diameter larger than  
3 an outer diameter of the tendon.

1           31. The intermediate anchor system of claim 25  
2 wherein the backside seal comprises an adaptor engaging  
3 the intermediate anchor and a backside O-ring engaging  
4 the adaptor and the tendon, and wherein the frontside  
5 seal comprises a cap engaging the intermediate anchor and  
6 a frontside O-ring engaging the cap and the tendon.

1           32. The intermediate anchor system of claim 31  
2 wherein the backside seal further comprises a backside  
3 bushing biasing the backside O-ring into sealing  
4 engagement with the adaptor and the tendon, and wherein  
5 the frontside seal further comprises a frontside bushing  
6 biasing the frontside O-ring into sealing engagement with  
7 the cap and the tendon.

1           33. The intermediate anchor system of claim 25  
2 wherein the backside seal comprises:  
3           an adaptor engaging the intermediate anchor;  
4           an O-ring within the adaptor and engaging both  
5 the adaptor and the tendon; and,  
6           a bushing engaging the adaptor so as to bias  
7 the O-ring into sealing engagement with the adaptor and  
8 the tendon.

1           34. The intermediate anchor system of claim 33  
2 wherein the O-ring is a backside O-ring, wherein the  
3 bushing is a backside bushing, and wherein the frontside  
4 seal comprises:

5           a cap engaging the intermediate anchor;  
6           a frontside O-ring within the cap and engaging  
7 both the cap and the tendon; and,  
8           a frontside bushing engaging the cap so as to  
9 bias the frontside O-ring into sealing engagement with  
10 the cap and the tendon.

1           35. The intermediate anchor system of claim 25  
2 wherein the frontside seal comprises:

3           a cap engaging the intermediate anchor;  
4           an O-ring within the cap and engaging both the  
5 cap and the tendon; and,  
6           a bushing engaging the cap so as to bias the O-  
7 ring into sealing engagement with the cap and the tendon.

1                   36. A method comprising:  
2                   placing an intermediate anchor having a wedge  
3                   hole at a concrete construction joint;  
4                   inserting a tendon through the intermediate  
5                   anchor leaving a sheathing of the tendon substantially  
6                   intact;  
7                   sealing the intermediate anchor on a bearing  
8                   side of the concrete construction joint;  
9                   making a cut circumferentially around the  
10                  sheathing in the wedge hole;  
11                  tensioning the sheathed tendon following  
12                  setting of concrete poured on the bearing side of the  
13                  concrete construction joint, thereby creating an exposed  
14                  portion of the tendon;  
15                  gripping the exposed portion with a wedge to  
16                  hold the tension; and,  
17                  sealing the intermediate anchor on a stressing  
18                  side of the concrete construction joint.

1                   37. The method of claim 36 wherein the sealing  
2                   of the intermediate anchor on the bearing side of the  
3                   concrete construction joint comprises attaching an  
4                   adaptor to the intermediate anchor on the bearing side

5 and inserting an O-ring within the adaptor so as to  
6 engage the adaptor and the tendon.

1 38. The method of claim 37 wherein the sealing  
2 of the intermediate anchor on the bearing side of the  
3 concrete construction joint further comprises attaching a  
4 bushing to the adaptor so as to bias the O-ring into  
5 sealing engagement with the adaptor and the tendon.

1 39. The method of claim 36 wherein the sealing  
2 of the intermediate anchor on the stressing side of the  
3 concrete construction joint comprises attaching a cap to  
4 the intermediate anchor on the stressing side and  
5 inserting an O-ring within the cap to engage the cap and  
6 the tendon.

1 40. The method of claim 39 wherein the sealing  
2 of the intermediate anchor on the stressing side of the  
3 concrete construction joint further comprises attaching a  
4 bushing to the cap so as to bias the O-ring into sealing  
5 engagement with the cap and the tendon.

1           41. The method of claim 36 wherein the sealing  
2 of the intermediate anchor on the bearing and stressing  
3 sides of the concrete construction joint comprises:

4           attaching an adaptor to the intermediate anchor  
5 on the bearing side and inserting a backside O-ring  
6 within the adaptor so as to engage the adaptor and the  
7 tendon; and,

8           attaching a cap to the intermediate anchor on  
9 the stressing side and inserting a frontside O-ring  
10 within the cap so as to engage the cap and the tendon.

1           42. The method of claim 41 further comprising:

2           attaching a backside bushing to the adaptor so  
3 as to bias the backside O-ring into sealing engagement  
4 with the adaptor and the tendon; and,

5           attaching a frontside bushing to the cap so as  
6 to bias the frontside O-ring into sealing engagement with  
7 the cap and the tendon.

1           43. The method of claim 36 wherein the sealing  
2 of the intermediate anchor on the bearing side of the  
3 concrete construction joint comprises:

4           attaching an adaptor having an adaptor neck to  
5 an anchor neck of the intermediate anchor;

6                   inserting an O-ring within the adaptor so as to  
7                   engage both the adaptor and the tendon; and,  
8                   engaging a bushing to the adaptor so as to bias  
9                   the O-ring into sealing engagement with the adaptor and  
10                  the tendon.

1                   44. The method of claim 36 wherein the sealing  
2                   of the intermediate anchor on the stressing side of the  
3                   concrete construction joint comprises:

4                   attaching a cap to the intermediate anchor;  
5                   inserting an O-ring within the cap so as to  
6                   engage both the cap and the tendon; and,  
7                   engaging a bushing to the cap so as to bias the  
8                   O-ring into sealing engagement with the cap and the  
9                   tendon.

1                   45. The method of claim 36 wherein the sealing  
2                   of the intermediate anchor on the bearing and stressing  
3                   sides of the concrete construction joint comprises:

4                   attaching an adaptor having an adaptor neck to  
5                   an anchor neck of the intermediate anchor on the bearing  
6                   side;

7                   inserting a backside O-ring within the adaptor  
8                   so as to engage both the adaptor and the tendon;

9                   engaging a backside bushing to the adaptor so  
10                   as to bias the backside O-ring into sealing engagement  
11                   with the adaptor and the tendon;

12                   attaching a cap to the intermediate anchor on  
13                   the stressing side;

14                   inserting a frontside O-ring within the cap so  
15                   as to engage both the cap and the tendon; and,

16                   engaging a frontside bushing to the cap so as  
17                   to bias the frontside O-ring into sealing engagement with  
18                   the cap and the tendon.

1                   46. The method of claim 36 wherein the  
2                   tensioning of the sheathed tendon comprises applying a  
3                   jack and a gripper wedge to the tendon.

1                   47. The method of claim 36 wherein the sealing  
2                   of the intermediate anchor on the bearing side of the  
3                   concrete construction joint comprises:

4                   attaching an adaptor to the intermediate anchor  
5                   on the bearing side; and,

6                   engaging a bushing to the adaptor.



1           48. The method of claim 36 wherein the sealing  
2 of the intermediate anchor on the bearing and stressing  
3 sides of the concrete construction joint comprises:

4           attaching an adaptor to the intermediate anchor  
5 on the bearing side;

6           engaging a backside bushing to the adaptor;

7           attaching a cap to the intermediate anchor on  
8 the stressing side; and,

9           engaging a frontside bushing to the cap.

1           49. The method of claim 36 wherein the  
2 tensioning of the sheathed tendon damages the sheathing  
3 of the tendon, and wherein the method further comprises  
4 repairing the damage before pouring concrete on the  
5 stressing side of the concrete construction joint.

1           50. The method of claim 49 wherein the  
2 repairing of the damage comprises taping.

1           51. An intermediate anchor for anchoring a  
2 tendon in concrete, the tendon having an outside  
3 diameter, the intermediate anchor having an O-ring to  
4 provide a seal between the intermediate anchor and the  
5 tendon, the O-ring having an inside diameter, the inside  
6 diameter of the O-ring being sufficiently larger than the  
7 outside diameter of the tendon in order to permit the O-  
8 ring to move freely over the tendon during installation.